Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Thus, claims 1-4, 6-12, 14 and 16-29 have been cancelled.

Claim 5 has been rewritten in independent form, to include the limitations of original claim 1 from which it depended.

In addition, claim 5 now recites that the weight-average molecular weight of the polymer compound is about 500 to 1,000,000, which is supported by the second full paragraph on page 25 of the specification.

Furthermore, amended claim 5 recites that the molar ratio of acrylamide or methacrylamide to biotin is from 3 to 30, which is based on the description in the paragraph bridging pages 23 and 24 of the specification.

In this regard, in the Japanese language original PCT specification, it is clearly indicated that the ratio referred to herein is a ratio of the former (i.e., (meth)acrylamide) to the latter (i.e., biotin). Therefore, the first sentence in the above-noted paragraph bridging pages 23 and 24 of the specification has been amended by adding "of the former to the latter" after the words "a ratio (molar ratio)".

Claim 13 has been amended to limit the hydrophilic and hydrophobic monomers to those recited in the first full paragraph on page 25 of the specification.

Claim 15 has been amended to correct a spelling error.

Upon entry of the claim amendments, the only claims remaining in the application will be claims 5, 13 and 15.

The rejection of claims 3-29 under the second paragraph of 35 U.S.C. §112, as applied to the claims remaining after entry of the foregoing amendments, is respectfully traversed.

The only remaining grounds for this rejection are those set forth in items 3b, wherein the Examiner argues that since both the reactive functional groups of the reactants and the reaction conditions under which the "polymer compound" is formed are unspecified, the structure of the final product cannot be ascertained; and the "biotinylated antibody" is inadequately defined. [The Examiner also refers to the expression "a high

molecular weight monomer component" in claim 5, but it is apparent that the Examiner meant claim 6, which has now been cancelled.]

The reactive functional groups of the reactants are apparent from Formula (I) and the structure of acrylamide or methacrylamide. Furthermore, with regard to reaction conditions, amended claim 5 recites the molar ratio of acrylamide or methacrylamide to biotin. Other reaction conditions are set forth in the specification, for instance, in the paragraph bridging pages 23 and 24, as well as the working examples, it being noted that it is the function of the specification, rather than the claims, to set forth how the claimed product is prepared.

With regard to the structure of the "biotinylated antibody", please see the attached abstracts of US 2002192718 and CA 2462343, and the DYNAL website, indicating that one of ordinary skill in the art is aware of the term "biotinylated antibody".

Accordingly, in view of the claim amendments and these remarks, Applicants respectfully submit that the rejection of the claims under 35 U.S.C. §112 should be withdrawn.

The objection to the claims in item 4 on page 3 of the Office Action has been rendered moot in view of the claim amendments.

The patentability of the presently claimed invention after entry of the foregoing amendments over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

The rejection of claims 1 and 2 in item 6 on page 3 of the Office Action has been rendered moot in view of the cancellation of these claims.

The other prior art rejections as set forth in items 7-11 are respectfully traversed.

All of these rejections include claim 5, which has been retained in the application in amended form. Although the Examiner states that the references describe the biotin-component-containing polymers including copolymers with acrylamide and methacrylamide of claim 5, the references do not disclose or suggest such polymers having a weight-average molecular weight of about 500 to 1,000,000, wherein the molar ratio of acrylamide or methacrylamide to biotin is from 3 to 30, as presently claimed.

For these reasons, the claimed invention is considered to be patentable over the applied references.

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of objection and rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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Substrate preparation for chemical-species-specific binding

Patent number: US2002192718
Publication date: 2002-12-19
Inventor: TOM-MOY MAY (US); MYERHOLTZ CARL ALAN (US)
Applicant:
Classification:
- international: G01N33/53; C12Q1/68
- european: G01N29/02F; G01N33/543F; G01N33/543K2; G01N33/552
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Priority number(s): US20010814360 20010321; US19920876804 19920429; US19890404721 19890908; US19880251149 19880929

Also published as:
US6586232 (B:

Abstract of **US2002192718**

A mass biosensor uses an intermediate avidin layer to facilitate binding of a biotinylated antibody to a measurement surface of the biosensor. The avidin layer can be added by the manufacturer of the biosensor, while the biotinylated layer can be added by the user. This two-phase method of chemically modifying the measurement surface significantly reduces the user time required to customize the measurement surface to render it capable of binding selected compounds. An organosilane coupling agent attached to the surface provides sites to which avidin is bound. Avidin acts as a universal receptor of biotinylated compounds with specific binding affinities. Biotinylated antibodies or other biotinylated compounds are added and bind to the immobilized avidin. Surface adsorption is reduced by washing the modified surface with biotin to block potential sites of weak bond formation, electrostatic and hydrophobic interactions.

GENETICALLY BIOTINYLATED RECOMBINANT ANTIBODY IN IMMUNOFILTRATION ASSAY BY LIGHT ADDRESSABLE POTENTIOMETRIC SENSOR FOR IDENTIFICATION OFVENEZUELAN EQUINE ENCEPHALITIS VIRUS

Patent number: CA2462343
Publication date: 2004-09-25
Inventor: HU WEIGANG [CA]; NAGATA LESLIE P [CA]; ALVI AZHAR Z [CA]; FULTON R ELAINE [CA]
Applicant: CANADA NATURAL RESOURCES [CA]
Classification:
- international: G01N33/569; G01N33/53; G01N33/543; C12Q1/70
- european:
Application number: CA20042462343 20040324
Priority number(s): US20030456939P 20030325

Abstract of **CA2462343**

A genetically biotinylated single chain fragment variable (scFv) antibody against Venezuelan equine encephalitis virus (VEE) being applied in a system consisting of an immunofiltration-enzyme assay (IFA) with a light addressable potentiometric sensor (LAPS) for the rapid identification of VEE is diselosed. The IFA entails formation of an immunocomplex sandwich consisting of VEE, biotinylated antibody, fluoresceinated antibody and streptavidin, capturing the sandwich by filtration on biotinylated membrane, and detecting the sandwich by anti-fluorescein urease conjugate. The concentration ratio of biotinylated to fluoresceinated antibodies is investigated and optimized. The IFA/LAPS assay sensitivity was approximately equal to that of a conventional enzyme- linked immunosorbant assay utilizing polystyrene plates and a chromogenic substrate, however, less time and effort were required for performance of the IFA/LAPS assay.


Applications
- HLA Diagnostics
- IVD Assay Development
- Cell Separation & Expansion
  - Human Cells
  - Mouse Cells
  - Other Cells
  - Clinical Trials
- Genomics/Gene Expression
- Proteins/Proteomics
- Microbiology
- Automation
- Customised Products

Use Antibodies From Any Species

Isolate any cell type from all species with bead detachment.

CELLection™ Biotin Binder Kit

These 4.5 µm beads bind biotinylated antibodies and are used for positive isolation of cell bead detachment. They are coated with recombinant streptavidin via a DNA linker - this i for DNase (included in the kit) to remove beads from cells after isolation. Detached cells a ~90% pure and viable and can be used directly in further studies.

More information about this product.